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10/604,105	06/26/2003	James S. Mason	GB920020056	1104

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INTERNATIONAL BUSINESS MACHINES CORPORATION  
DEPT. 18G  
BLDG. 300-482  
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HOPEWELL JUNCTION, NY 12533

EXAMINER

NGUYEN, MINH T

ART UNIT PAPER NUMBER

2816

DATE MAILED: 01/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/604,105

Applicant(s)

MASON, JAMES S.

Examiner

Minh Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Specification***

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it uses words which can be implied, i.e., "is provided", line 1. Correction is required. See MPEP § 608.01(b).

### ***Claim Objections***

2. Claims 2-3, 10-11 and 18-19 are objected to because of the following informalities:

In claims 2 and 3, "control signals" recited on line 2 of claim 2 should be changed to -- first control signals and "control signals" recited on line 2 of claim 3 should be changed to -- second control signals -- to avoid antecedent basis problem.

In claims 10 and 11, same problems as discussed in claims 2 and 3.

In claims 18 and 19, same problems as discussed in claims 2 and 3.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-5, 9-13 and 17-21 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 6,026,456, issued to Ilkbahar.

As per claim 1, Ilkbahar discloses an arrangement (Fig. 5), comprising:

a first active device (NMOS 560) to provide resistance (Fig. 5 is a termination circuit, column 7, line 52), having a non-linear response (because it is an NMOS); and

a second active device (PMOS 532) coupled to the first active device (in parallel as shown), having a non-linear response (because it is a PMOS) adapted to compensate substantially for the non-linear response of the first active device (due to the complementary characteristics of PMOS and NMOS).

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As per claim 2, the recited control signals read on the signals on the control line 528.

As per claim 3, the recited control signals read on the signals on the control line 526.

As per claims 4-5, the recited limitations are met since FET 560 is NMOS, FET 532 is PMOS.

As per claims 9-13, rejected for the same reasons noted in claims 1-5, respectively.

As per claims 17-21, these claims are merely methods to operate an active resistor network having structures discussed in claims 1-5, since Ilkbahar teaches the network, he inherently teaches the method to operate.

4. Claims 1-5, 9-13 and 17-21 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,323,673, issued to Starr.

As per claim 1, Starr discloses an arrangement (Fig. 3B), comprising:

a first active device (the NMOS, right hand side) to provide resistance (the circuit of Fig. 3B is used as termination resistance, column 5, lines 49-53), having a non-linear response (because it is an NMOS); and

a second active device (the PMOS, left hand side) coupled to the first active device (in parallel as shown), having a non-linear response (because it is a PMOS) adapted to compensate substantially for the non-linear response of the first active device (due to the complementary characteristics of PMOS and NMOS).

As per claim 2, the recited control signals read on the signals on the gate of NMOS.

As per claim 3, the recited control signals read on the signals on the gate of PMOS.

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As per claims 4-5, the recited limitations are met since the shown transistors are PMOS and NMOS.

As per claims 9-13, rejected for the same reasons noted in claims 1-5, respectively.

As per claims 17-21, these claims are merely methods to operate an active resistor network having structures discussed in claims 1-5, since Starr teaches the network, he inherently teaches the method to operate.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-8, 14-16 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,026,456, issued to Ilkbahar.

As per claim 6, Ilkbahar discloses an arrangement having the structure discussed in claim 5 above but he does not explicitly disclose the first and second active devices are provided with minimum dimensions for optimal high frequency performance as called for in the claim.

However, as ruled by the court, when general conditions are disclosed in the prior art (in the particular case, Ilkbahar teaches the arrangement which is the same as the inventive claim and for use as active resistor for applications such as transmission line terminators which are also the same as the present invention), it is not inventive to discover the optimum ranges by routine experimentation.

It would have been obvious to one skilled in the art at the time of the invention was made to minimize the dimensions of FETs in the Ilkbahar terminator network in order to have a more compact module which is obviously a desirable feature for any electronic circuits.

As per claims 7-8, the arrangement discussed in claim 6 does not explicitly teach the first and second active devices are tuned using an optimization algorithm or a manual technique as called for in claims 7-8, respectively.

However, as ruled by the court, when general conditions are disclosed in the prior art, it is not inventive to modify and discover the optimum ranges by routine experimentation.

It would have been obvious to one skilled in the art at the time of the invention was made to tune the FETs in the Ilkbahar's active resistor using different techniques to obtain the precisions of the resistances, examples would be using manual technique for simple applications, using laborious, complex techniques such as genetic algorithm or neural network for complex applications and these selections are well-known to a person skilled in the art.

As per claims 14-16 and 22-24, these claims are rejected for the same reasons and motivations discussed in claims 6-8 herein above.

6. Claims 6-8, 14-16 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. US Patent No. 6,323,673, issued to Starr.

As per claim 6, Starr discloses an arrangement having the structure discussed in claim 5 above but he does not explicitly disclose the first and second active devices are provided with minimum dimensions for optimal high frequency performance as called for in the claim.

However, as ruled by the court, when general conditions are disclosed in the prior art (in the particular case, Starr teaches the arrangement which is the same as the inventive claim and for used as active resistor for applications such as transmission line terminators), it is not inventive to discover the optimum ranges by routine experimentation.

It would have been obvious to one skilled in the art at the time of the invention was made to minimize the dimensions of FETs in the Starr terminator network in order to have a more compact module which is a desirable feature for any electronic circuits.

As per claims 7-8, the arrangement discussed in claim 6 does not explicitly teach the first and second active devices are tuned using an optimization algorithm or a manual technique as called for in claims 7-8, respectively.

However, as ruled by the court, when general conditions are disclosed in the prior art, it is not inventive to modify and discover the optimum ranges by routine experimentation.

It would have been obvious to one skilled in the art at the time of the invention was made to tune the FETs in the Starr's active resistor using different techniques to obtain the precisions of the resistances, examples would be using manual technique for simple applications, using laborious technique such as genetic algorithm or neural network for complex applications and these selections are well-known to a person skilled in the art.

As per claims 14-16 and 22-24, these claims are rejected for the same reasons and motivations discussed in claims 6-8 herein above.



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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Nguyen whose telephone number is 703-306-9179. The examiner can normally be reached on Monday, Tuesday, Thursday, Friday 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 703-308-4876. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

 1/20/01

Minh Nguyen  
Primary Examiner  
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